REMARKS

Claims 1-55 are all the claims presently pending in the application. Claims 1, 5, 6, 9, 10-11, 15 and 19-20 have been amended to more particularly define the invention. Claim 55 has been added to claim additional features of the claimed invention. Attached hereto is a marked-up version of the changes made to the specification and claims by the current Amendment.

An excess claim fee payment letter is attached hereto.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability.

Claims 1-54 stand rejected under 35 U. S. C. §112, second paragraph as indefinite.

This rejection is respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

The claimed invention is directed to a system for unobtrusively detecting a subject's level of interest in media content. The inventive system includes a means for detecting to what a subject is attending, a means for measuring a subject's relative arousal level, and a means for combining information regarding the subject's arousal level and attention to infer a level of interest.

Conventional systems for measuring a subject's interest often estimate a mental decision by monitoring a subject's gaze direction and EEG to detect when a subject is looking at a visual target. Other systems remotely determine a subject's emotional state by broadcasting a waveform of predetermined frequency and energy at the subject, and analyzing the emitted energy to determine physiological parameters (e.g., respiration, pulse, blood pressure, etc.). However, these systems cannot measure a subject's interest in real-time by passively observing the subject.

The claimed invention, on the other hand, uses a subject's arousal level and attention to infer a level of interest. Therefore, the claimed system is able to reliably assess the subject's interest level in real-time by passively observing the subject.

II. THE 35 U. S. C. §112, SECOND PARAGRAPH REJECTION

The Examiner alleges that claims 1-54 are indefinite as failing to point out and distinctly claim the subject matter that Applicant regards as the invention. Applicant submits, however, that the claims are not indefinite.

Specifically, the Examiner alleges that claims 1-54 do not explain "how the attended subject is detected, as well how the various facial and other expressions are measured." Applicant notes, however, that claims 1-54 are not indefinite.

As noted above, conventional systems for measuring a subject's interest often estimate a mental decision by monitoring a subject's gaze direction and EEG to detect when a subject is looking at a visual target (Application at page 3, line 21-page 4, line 3). Other systems remotely determine a subject's emotional state by broadcasting a waveform of predetermined frequency and energy at the subject, and analyzing the emitted energy to determine physiological parameters (e.g., respiration, pulse, blood pressure, etc.) (Application at page 4, lines 4-11). However, these systems cannot measure a subject's interest in real-time by passively observing the subject (Application at page 5, lines 15-17).

The claimed system, on the other hand, uses a subject's arousal level and attention to infer a level of interest (Application at page 10, line 7-page 12, line 9; Figure 1). For example, it is explained that the subject's gaze may be tracked to determine what has the subject's attention (Application at page 10, lines 8-10). For instance, this may be performed unobtrusively by a remote camera-based technique such as "corneal glint" technique (Application at page 10, lines 13-15). The Application explains that "[o]nce it is known at which object the subject is looking, the subject's level of attention toward that object, as well as the subject's history of attention to various objects, can be determined" (Application at page 12, lines 5-7).

As shown in the flow chart in Figure 1, if the system finds that the subject (e.g., user) is attending to the target information, the system measures the subject's arousal level (Application at Figure 1; page 12, lines 10-12). For instance, this may be done by analyzing facial expressions such as eyebrow and mouth features, and head gestures such as yawns or nods (Application at page 12, line 13-page 17, line 12).

The inventive system uses the measured arousal level to infer the subject's interest level (Application at Figure 1; page 17, line 13-page 20, line 11). For instance, it is provided that the interest level may be inferred using a Bayesian network. Figure 4 illustrates a Bayesian network consisting of 11 variables for inferring a subject's interest. It is explained that, once such a network is built, it can be used to infer the most probable states for any unobserved variable, based on a state of some observed variables (Application at page 18, lines 12-15). Therefore, the claimed system is able to reliably assess the subject's interest level in real-time by passively observing the subject.

Therefore, Applicant respectfully submits that the claims are not indefinite. Indeed, the Examiner merely states that the claims do not explain "how the attended subject is detected, as well how the various facial and other expressions are measured." Nothing more is stated as to *why* the claim language is indefinite. As such, Applicant has closely reviewed the disclosure, drawings and claims, and respectfully asserts that the claims are indeed sufficiently certain to allow one of ordinary skill in the art to know what Applicant is attempting to obtain possession of in any subsequently issued patent.

Prior to reaching the merits of the Examiner's rejection, Applicant points out to the Examiner that an inventor can be his own lexicographer, as is well-known. Thus, the fact that the claims or specification may not use the exact terminology and language which the Examiner desires is not critical (or indeed relevant) to the allowability of the case and the sufficiency of the disclosure with regard to conveying to ordinarily skilled artisans that the inventor had possession of the claimed subject matter, as well as to determine the metes and bounds of the invention.

Further, Applicant points out that claims are not interpreted or construed (and, indeed, are not properly examinable) in a vacuum. Instead, the specification, the other claims and the drawings, inter alia, should be referred to and consulted, when construing the claims properly. This may be especially important, for example, where the claims are in means-plus-function form, such as independent claims 1 and 12.

Further, Applicant notes that, under M.P.E.P. §§706.03 (d) and 2173.02, the Examiner "should allow claims which define the patentable novelty with a reasonable degree of particularity and distinctness" (emphasis PTO's). The M.P.E.P. further indicates that "[s]ome

latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire."

Clearly, while presumably claims 1-54 may not use the exact language which the above-identified Examiner desires, claims 154 are well within a reasonable degree of particularity and distinctness, as provided by the M.P.E.P. and 35 U. S. C. § 112, second paragraph. Indeed, the present claims would clearly allow one of ordinary skill in the art to know the metes and bounds of the invention (what the invention is and what coverage Applicant's claims possess).

With the above in mind and putting the claims into the context of the present invention and what is described in the present specification and shown in the application drawings, Applicant now turns to the Examiner's specific claim objections.

Specifically, the Examiner alleges claim 1 does not explain "how the attended subject is detected". However, it is not necessary in the inventive system to "detect the subject". Indeed, as explained above, and as recited in claim 1, for instance, the claimed system detects "to what a subject is attending" (Application at Figure 1).

The Examiner also alleges that the claims do not explain "how the various facial features and other expressions are measured". However, Applicant respectfully submits that this element is sufficiently recited (e.g., in claim 1, it is recited as "means for measuring a subject's relative arousal level"). Indeed, Applicant submits that any person of ordinary skill would read the claims in combination with the specification and find the recitation more than sufficient to understand the invention. Applicant notes that the claims themselves need not be a production document.

Applicant notes that the elements are similarly recited in claim 12 and, therefore, claim 12 is adequate and not indefinite, at least for the same reasons set forth above, contrary to the allegations of the Examiner.

In addition, the Examiner alleges that claims 53 and 54 do not "have dependent claims which suggest how arousal is even to be noted, let alone measured." However, Applicant respectfully submits that these claims are not indefinite.

For example, claim 53 recites in part, "*measuring a subject's relative arousal level; and combining information regarding said subject's arousal level and attention to infer a*

level of interest" and claim 54 recites in part "*assessing a subject's relative arousal level with regard to the media content, to produce second data; combining said first and second data to infer a level of interest the subject has in said media content; and communicating said level of interest as feedback about the media content to a manager of said media content*". Applicant respectfully submits that these claims do not need to recite any further regarding measuring or assessing the subject's arousal level than is already recited. Indeed, any person of ordinary skill in the would find these claims more than adequate.

Moreover, Applicant submits that whether these claims have dependent claims is totally irrelevant to whether the claims satisfy 35 U. S. C. §112, second paragraph.

Further, Applicant points out that all that is needed for §112, second paragraph, is to define the claims with sufficient certainty to allow one of ordinary skill in the art to know the metes and bounds of the application. This, Applicant has done. The claims need not be a production specification, or a lengthy tutorial or dissertation for persons not ordinarily skilled in the art, or the like. One of ordinary skill in the art reading claims 1-54, would be able to know clearly the metes and bounds of Applicant's invention.

In view of the foregoing, the claims are believed to be sufficiently definite to allow one of ordinary skill in the art to know the metes and bounds of the invention. Once again, the claims themselves are not construed in a vacuum and there is no requirement that the claims in and of themselves present a tutorial of the invention. Indeed, it is the entire application including the specification and drawings, which should be referred to in construing the claims.

Hence, reconsideration and withdrawal of this rejection are respectfully requested.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-55, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed

below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

Date: 12/31/01

Phillip E. Miller
Reg. No. 46,060

McGinn & Gibb, PLLC
8321 Old Courthouse Road, Suite 200
Vienna, VA 22182-3817
(703) 761-4100
Customer No. 21254

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

New claim 55 was added.